Comments of Eastern Sky, LLC
In the Matter of GN Docket No. 18-122

Seeking comment for a Report to Congress
on the feasibility of allowing commercial
wireless services to use or share the use of
the frequencies between 3.7 and 4.2 GHz

30 May 2018

Eastern Sky, LLC, is licensee of WZXI (AM), Lancaster, Kentucky. WZXI is a Class D daytime AM station with an FM translator. WZXI is one of only two broadcast stations licensed in Garrard County, Kentucky. Garrard County has a 2010 Census population of 16,912 persons. In a small rural county, WZXI relies on a number of syndicate programs to fill out its program schedule. It is not economically possible to produce all content locally in such a small community.

WZXI's syndicated programs utilize C-band satellite reception equipment for delivery of program content for broadcast. As such, Eastern Sky has a great interest in preserving interference-free reception of such satellite signals.

As the Commission is well aware, satellite reception deals with low-power-density signals coming from space, signals that are often just a few dB above the noise floor. Large-aperture, high-gain antennas are required to resolve and recover these signals.

WZXI uses a 15 degree LNB, which is a high performance unit, and has signals with a 12 dB E_b/N_0. That is a good signal, but that does not provide much margin above any additional interference. WZXI is in the process of registering its receive only satellite antenna. With the reduction in terrestrial use of the 3.7-4.2 GHz band, the risk of interference is low, and the expense of registration has been an obstacle for WZXI and other small market AM stations.

Strong terrestrial signal sources can overwhelm satellite receiver front ends to the point where reception of desired signals is impossible. Even adjacent frequencies can cause significant problems. Currently, most of the adjacent band signals originate from large aperture antennas with tightly-controlled beams. Other signals in the same band that originate from omnidirectional sources will not benefit from the same restricted patterns, and will interfere more. Moreover, mobile use will be impossible to identify in a timely manner, interrupting programming to the existing listeners.

The Commission needs to carefully consider the possible adverse effects that terrestrial sharing of C-band satellite signals in the 3.7-4.2 GHz band would have. The existing C-band satellite system has been in place for many years. Eastern Sky and others have a considerable investment in the infrastructure. It is reliable, provides access to nationally distributed programming, and employs the very-cost-effective one-to-many broadcast model. This system is invaluable and must be protected. Sharing use of the C-band satellite spectrum with mobile systems would result in destructive interference to satellite communications.

WZXI does not have any reasonable alternative to C-Band satellite for the receipt of syndicated programming. It does have a Ku band downlink, and so has experience with weather related outages in that band. The physical size of raindrops is a physical problem relative to the wavelength at Ku band, and no increase in dish size can eliminate dropouts.

WZXI is located 1.1 miles from the center of Lancaster. The only "high speed" Internet access is DSL service on copper wires. That service is limited to 6 MB/s, at its best. There are multiple bit errors per day, and more than one dropout per day, as seen in the logs that the Ethernet router provides. The service is not sufficiently reliable for on-air programming. Fiberoptic cable is not available.

As the Federal Government recognizes, broadband access is not present in many rural areas. For instance, the USDA has a Rural Broadband Access Loan and Loan Guarantee program to facilitate expanding broadband access. The very act that resulted in this docket is a separate effort to improve rural broadband. Attempting to share the 3.7-4.2 GHz band would result in a replacement of satellite service with terrestrial service, not the provision of new service while maintaining existing services.

In addition to the syndicated programming used by WZXI, all major radio and television networks depend on satellite distribution. As other commenters have stated, there are no other means, either satellite or terrestrial, which can duplicate the coverage of the current system.

Eastern Sky recognizes that the Commission is required to study the feasibility of sharing the band, and appreciates the opportunity to file comments. The Office of Engineering and Technology is well respected and has the ability to provide analysis of the signal levels required for the respective uses of the spectrum. The C-Band satellite system has evolved to make use of the line-of-sight paths from the geosynchronous satellite arc to locations all over the United States, taking advantage of the low signal levels that such paths permit. Mobile use would not have unobstructed paths, and would therefore require higher power densities. Such sharing would destroy the existing service.

Respectfully submitted,

/s/ David Greenlee, Owner/Managing Member